



Flatbeds v Film Scanners

If you're serious about 35mm photography or you want to digitise your dusty old negatives, you'll need a film scanner. We test four dedicated devices to find out how they compare to high-end flatbed scanners

Digital cameras give instant results, and various home, lab and online services mean that you can have a lab-quality photo print in a matter of minutes. You could be forgiven for wondering why anyone would bother with buying, shooting, processing and scanning traditional film.

For a couple of hundred pounds, though, you can now buy a 35mm film SLR that was once top of the range. Good digital SLR cameras cost far more, and even the best available today will soon be superseded by new models with better sensors.

What's more, many of us still have drawers full of old negatives, and you can give your traditional snaps a new lease of life with a little digital help. Flatbed scanners that scan film are available for less than £40, but for professional results you'll need to spend much more. This month we've tested four dedicated film scanners. We've also examined two high-end flatbed scanners to see if you can get decent results from a cheaper device.



CHOOSING A... SCANNER

Film negatives are very small, but they hold enough detail for a lab to produce a poster-sized traditional print. If you want to capture all this detail from a frame, you need a scanner with a high resolution. This is measured in dots per inch (dpi).

A 4,000dpi scanner can extract an image of around 4,000x5,600 pixels from a 35mm negative. This is broadly equivalent to a 22-megapixel digital camera. High-quality printing requires at least 300 pixels of information per inch, so this level of detail is enough to print a borderless image on A3+ paper.

A high resolution isn't the only thing to look for in a film scanner, however. If the scanner's optics don't focus the image sharply on to the scan head, fine details will be lost and areas of sharp contrast will appear soft. A scanner with good focus generally produces better images than a higher-resolution device with poor focus.

Most scanners have no problem recording different mid-tones, but some fail to spot subtly different shades in very dark or light regions. It's especially common for detail to be lost from deeply shaded areas. Many scanners find it difficult to record colours accurately, often imparting a slight bias towards one shade. This can be corrected in a decent image-editing application, but it saves time if the original scan is accurate.

HOLD IT

You may be buying a scanner to archive your film, but your negatives are irreplaceable until you've finished scanning them and backed up the images. The best film scanners make it easy to load your precious originals and are designed to prevent scratching or other damage while you scan.

It's easy to load film into the plastic holders supplied with the Epson F-3200 and Konica Minolta's Scan Elite 5400 II, and both have indents that help you avoid adding fingerprints to your negatives. The F-3200 and Microtek's ArtixScan 4000tf pass the film holder out of the rear, so you should check for obstructions when locating them.

Nikon's CoolScan LS 50 ED doesn't use film holders at all. It's the easiest scanner to load and unload, but those of a nervous disposition might find themselves biting their nails each time the motorised loader sucks in a strip of film.

CLEANING UP

Dust particles are tiny on an A4 document, so they don't often show up in regular scans. Dirt and hairs loom large at the magnification required for film scanning, however, and it can take ages to retouch a scruffy-looking scan. Canned air, available at good photographic shops, is indispensable when scanning film, but it's hard to keep negatives perfectly clean.

Each scanner in this group has some kind of dust-reduction technology. Epson's F-3200 and the ArtixScan 4000tf use software, which can be quite effective at removing blemishes but isn't ideal as it also removes some detail from the image itself.

The other four scanners use infrared light to help identify dirt on the surface of the film. This provides extra information that allows software to remove dust without losing so much detail from the original image, but it doesn't work with black-and-white film.

Konica Minolta's Scan Elite 5400 II has other image-correction features that help to reduce film grain, restore faded colour and optimise highlights. These are all useful to have, but many photographers will prefer to make advanced improvements in a good image-editing package.

THE SOFT OPTION

Every scanner here comes with a Windows TWAIN driver, which allows you to import a scanned photo directly into an image-editing application. In most cases this gives enough control to satisfy advanced users, but most manufacturers also include a version of LaserSoft's SilverFast. This is a powerful scanning application, but it could be easier to use.

Each scanner also comes bundled with Adobe's Photoshop Elements. This is a good image-editing package, but it won't allow you to work with a colour depth of more than 24 bits, or 8-bit greyscale. We recommend that you scan at the highest possible bit depth and allow Elements to convert the image. Alternatively, consider investing in the full version of Photoshop.

IN THIS REVIEW

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Epson F-3200
Konica Minolta DiIMAGE Scan Elite 5400 II
Microtek ArtixScan 4000tf
Nikon CoolScan LS 50 ED

FLATBED SCANNERS

Canon CanoScan 9950F
Epson Perfection 4990 Photo



REVIEW FILM SCANNER

EPSON
F-3200

RATING ★★★★★

PRICE £490 inc VAT

SUPPLIER www.firstcall-photographic.co.ukDETAILS www.epson.co.uk

The F-3200 is the only film scanner in this group that supports medium and large-format negatives. It can scan transparencies up to 5x4" and reflective materials up to 6x4". Epson supplies five sturdy film loaders, each of which keeps originals flat without obscuring the photographic image. The film loaders are deeper than the scanner body, so they pass out the back during scanning.

This scanner's software bundle includes SilverFast AI with IT8 colour calibration. Reflective and film targets are supplied, making it easy to create custom colour profiles. We created and used a film profile for our tests, in which the F-3200 produced images with particularly high colour accuracy. It also captured high levels of shade and light detail. However, we were less impressed with the sharpness of its images. Focus was better than either of the flatbed devices, but scans were soft when compared to the other dedicated film scanners. The F-3200 also has the lowest optical resolution of the group.

The F-3200 can make scans directly to a memory card or supported Epson printer. We can't think of many circumstances where this would be useful, particularly as there are no retouching or dust-reduction options available without a computer. The F-3200 is the best scanner here for medium and large-format film, but we'd gladly exchange its direct scanning functions for a manual or automatic focus control.

✓ Fast; excellent colour accuracy; great film handling

✗ Soft scans; comparatively low optical resolution

SPECIFICATIONS 3,200x6,400dpi optical resolution, 48-bit colour depth, USB Hi-Speed and FireWire interfaces. **Part code** C11C53021GZ

REVIEW FILM SCANNER

MICROTEK
ArtixScan 4000tf

RATING ★

PRICE £640 inc VAT

SUPPLIER www.datamind.co.ukDETAILS www.microtek.co.uk

Microtek's ArtixScan 4000TF is the most expensive scanner in our group, but it's the only one without a USB Hi-Speed interface. It has a FireWire port, however, and it comes with a PCI FireWire card. The scan times in the table on page 196 were obtained using a FireWire connection.

The 35mm strip adaptor's film guides are slightly too wide, making it hard to get film perfectly straight, and frame dividers overlap a tiny amount of each image. We found it fiddly to load negatives and keep them aligned, and didn't like the vague way the holder engaged in the scanner. There are no flaps to keep dust out of the scanner body, although a dust cover is included.

This is one of two scanners here with a colour calibration target, but the batch date of our film slide was newer than any listed in the calibration software. The scan interface has a range of colour film profiles, but we found it hard to achieve accurate colours in our scans.

Although they were sharp, images from the ArtixScan were the worst here. We were very disappointed by the scanner's inability to extract information from the darkest regions of our test images, and the amount of noise that appeared in shadows. Worst of all, it heated our negatives so much that they were slightly curled after our tests.

✓ Two-year warranty; sharp scans

✗ Expensive; poor image quality; curled negatives; clunky interface

SPECIFICATIONS 4,000x4,000dpi optical resolution, 42-bit colour depth, USB and FireWire interfaces. **Part code** MAS4000TF

REVIEW FILM SCANNER

KONICA MINOLTA
DiIMAGE Scan Elite 5400 II

RATING ★★★★★

PRICE £500 inc VAT

SUPPLIER www.datamind.co.ukDETAILS www.konicaminolta.co.uk

The Scan Elite 5400 II has a 5,400x5,400dpi optical resolution, which is higher than the other devices here. It's supplied with adaptors for a single strip of up to six 35mm frames, or four mounted slides. Both are easy to load or unload, but frame dividers in the strip film holder overlap a tiny amount of each shot.

The scanner's front panel doesn't look particularly classy, and its chromed plastic buttons and focus knob seem a little cheap for a £500 device. The TWAIN driver interface isn't as slick as those made by Epson or Canon, but it provides lots of control over scans. The Pixel Polish feature helps to optimise colour, contrast and brightness levels, but it doesn't support images with a 48-bit colour depth. There are several other image-enhancement features, including infrared dust correction.

The Scan Elite was one of the fastest products here, even when capturing images at its highest quality settings. The scanner automatically adjusts its focus before each full scan, which helps it make the most of its full resolution. The images it produces are sharp and detailed enough to reveal film grains, so the Digital GEM grain reduction could prove useful.

High speed and excellent image quality make this a great 35mm film scanner. However, we preferred the results from Nikon's CoolScan LS 50ED, which costs slightly less.

✓ Sharp and detailed scans; fast; very high resolution

✗ Scans from Nikon are slightly better; looks cheaper than it is

SPECIFICATIONS 5,400x5,400dpi optical resolution, 48-bit colour depth, USB Hi-Speed interface. **Part code** V2892101A

REVIEW FILM SCANNER

NIKON
CoolScan LS 50 ED

RATING ★★★★★

PRICE £481 inc VAT

SUPPLIER www.savastore.comDETAILS www.nikon.co.uk

The CoolScan LS 50 ED has a high-quality seven-element ED lens and a reasonable 4,000dpi resolution, but only captures with 14 bits per colour channel. In theory, the 16-bit-per-channel devices in the group can record 64 times as subtle colour variations.

This is the only scanner here that doesn't use plastic holders to load film. Instead, film strips or mounted slides are inserted directly into one of two interchangeable loaders. A motorised loading system then draws originals into the scanner. It takes a couple of attempts to get the knack of inserting film, but it's easier than using a holder and the alignment was consistently perfect.

Nikon's TWAIN interface also takes a little getting used to, but in use it became our favourite of the group. We particularly liked being able to start work on the first preview image while the scanner finished the others.

The CoolScan's automatic focus helped it to produce the sharpest images we've ever seen from a scanner, revealing many of our test shots in almost forensic detail. It extracted a wealth of information from areas of dark shadow that many of the other scanners couldn't penetrate, and this didn't come at the expense of fidelity elsewhere.

This is the best scanner here if you use only 35mm film.

✓ Fantastic image quality; motorised film loaders

✗ Powerful TWAIN interface takes some learning

SPECIFICATIONS 4,000x4,000dpi optical resolution, 42-bit colour depth, USB Hi-Speed interface. **Part code** LS50NSUK

REVIEW **FLATBED SCANNER****CANON**
CanoScan 9950F

OVERALL RATING ★★★★★

FILM RATING ★★★★★

PRICE £294 inc VAT

SUPPLIER www.misco.co.ukDETAILS www.canon.co.uk

The CanoScan 9950F is the most affordable device in this test. Its backlight moves in tandem with the scan head when capturing transparencies, covering the full width of its lid. This allows the scanner to capture large areas of film.

Mounts are included for 35mm film strips and slides, and medium and large-formats. The 35mm mount can hold up to 30 frames. It feels quite fragile, however, and can be fiddly to load.

This scanner's TWAIN interface includes an optional high-quality mode when scanning in colour. This produces marginally improved images but slows down the scanner considerably. Even without it, though, the 9950F was the slowest device in our tests. It had the worst focus of the group, producing images that were too soft for serious photography use.

✓ Huge batch scan capacity; scans film media up to A4

✗ Poor focus; very slow

SPECIFICATIONS 4,800x9,600dpi, 48-bit colour, USB Hi-Speed and FireWire. Part code 9190A004AA

REVIEW **FLATBED SCANNER****EPSON**
Perfection 4990 Photo

OVERALL RATING ★★★★★

FILM RATING ★★★★★

PRICE £311 inc VAT

SUPPLIER www.misco.co.ukDETAILS www.epson.co.uk

The 4990 is Epson's most expensive flatbed scanner and is aimed at serious creative and photographic users. It has the same scan area as the CanoScan 9950F, but its batch size is limited to 24 frames. It's a much faster scanner, however, which will make it quicker over multiple films.

Unlike Epson's F-3200, the 4990 doesn't include colour-calibration software. Its colour accuracy was impressive, but not as good as the F-3200's.

Images from the 4990 had better focus than those from the CanoScan 9950F, but were a little less sharp than those from the F-3200. The scanner's auto levels worked particularly well with black-and-white photos, but we noticed that some detail was lost from light regions. It's the best flatbed here, but its results compare poorly to those from the dedicated film scanners.

✓ Fast; scans film media up to A4; decent TWAIN interface

✗ Soft focus; some loss of detail in light regions

SPECIFICATIONS 4,800x9,600dpi, 48-bit colour, USB Hi-Speed and FireWire. Part code B11B175022

FILM SCANNERS

MANUFACTURER	EPSON	KONICA MINOLTA	MICROTEK	NIKON	CANON	EPSON
Model	F-3200	DiIMAGE Scan Elite 5400 II	ArtixScan 4000tf	CoolScan LS 50 ED	CanoScan 9950F	Perfection 4990 Photo
Overall rating	★★★★	★★★★	★	★★★★★	★★★	★★★
TESTED SCAN SPEEDS						
Full scan area preview	21s	13.5s	2m 24s	20s	49.5s	17.5s
35mm frame at 2,400dpi	29s	43s	1m 19s	54s	1m 34s	43.5s
35mm frame at maximum dpi	36s (3,200dpi)	43s (5,400dpi)	1m 26s (4,000dpi)	1m 25s (4,000dpi)	2m 53s (4,800dpi)	1m 14s (4,800dpi)
4x 35mm frames at 2,400dpi	2m 05s	4m 04s	5m 26s	6m 08s	6m 26s	2m 59s
SPECIFICATIONS						
Optical resolution	3,200x6,400dpi	5,400x5,400dpi	4,000x4,000dpi	4,000x4,000dpi	4,800x9,600dpi	4,800x9,600dpi
Colour depth	48-bit	48-bit	42-bit	42-bit	48-bit	48-bit
Dust removal	Software	Digital ICE infrared	Software	Digital ICE infrared	FARE infrared	Digital ICE infrared
SOFTWARE AND CALIBRATION						
Colour calibration	IT8 target for ICC profiling	N/A	IT8 target for ICC profiling	N/A	N/A	N/A
Supplied software	Adobe Photoshop Elements 2.0, LaserSoft SilverFast AI 6	Adobe Photoshop Elements 2.0	Adobe Photoshop Elements 2.0, LaserSoft SilverFast AI Pro, Microtek Scanner ICC Profiler	Adobe Photoshop Elements 2.0, Nikon Scan 4, Nikon View 6	Adobe Photoshop Elements 2.0, LaserSoft SilverFast SE	Adobe Photoshop Elements 2.0, LaserSoft SilverFast SE
Supported operating systems	Windows 98/Me/2000/XP, Mac OS 8.6-9.2, OS X 10.2 or above	Windows 98/Me/2000/XP, Mac OS 9.2.2, OS X 10.1.3-10.1.5, 10.2.1-10.2.8, 10.3-10.3.6	Windows 98 SE/Me/2000/XP, Mac OS 9.x, OS X 10.3	Windows 98 SE/Me/2000/XP, Mac OS 9.1 or above, OS X 10.1.5 or above, OS X 10.2	Windows 98/Me/2000/XP, Mac OS X 10.1.3 or above	Windows 98 SE/Me/2000/XP, Mac OS X 10.2.7 or above
PHYSICAL AND ENVIRONMENTAL						
Film formats/maximum document size	35mm strip and slide, medium-format 120/220, 5x4" large-format, film or reflective up to 6x4"	35mm strip and slide	35mm strip and slide, APS (optional)	35mm strip and slide	35mm strip and slide, medium-format 120/220, 5x4" large-format, A4 reflective	35mm strip and slide, medium-format 120/220, 5x4" large-format, A4 reflective
Maximum batch size	12x 35mm frames	6x 35mm frames	6x 35mm frames	6x 35mm frames	30x 35mm frames	24x 35mm frames
Other features	LCD screen, direct printing, supports USB storage and CF, xD, SM, SD, MMC, MS (Pro), MicroDrive	None	Supplied with PCI FireWire card, cleaning brush and dust cover	None	None	None
Optional features	Three-year warranty extension	None	APS film cartridge £90	None	None	Automatic document feeder £184
Interface	USB Hi-Speed and FireWire	USB Hi-Speed	USB and FireWire	USB Hi-Speed	USB Hi-Speed and FireWire	USB Hi-Speed and FireWire
Dimensions (HxWxD)	94x210x250mm	165x70x345mm	150x175x324mm	172x96x315mm	128x290x509mm	113x272x475mm
PRICE AND WARRANTY						
Price inc VAT	£490	£500	£640	£481	£294	£311
Warranty	One year RTB	One year RTB	Two years RTB	Two years RTB	One year RTB	One year RTB
Supplier	www.firstcall-photographic.co.uk	www.datamind.co.uk	www.misco.co.uk	www.savastore.com	www.misco.co.uk	www.misco.co.uk
Contact	www.epson.co.uk	www.konicaminolta.co.uk	www.microtek.co.uk	www.nikon.co.uk	www.canon.co.uk	www.epson.co.uk
Part code	C11C553021CZ	V2892101A	MAS4000TF	LS50NSUK	9190A004AA	B11B175022

LABS VERDICT **FILM SCANNERS**

Neither of the flatbed scanners in this test came close to the quality of dedicated film scanners. Epson's Perfection 4990 Photo is the best, but if you're serious about photography we'd advise saving for a dedicated film scanner.

Epson's F-3200 produced softer images than the other dedicated film scanners, but we were

impressed by its ability to record shade detail and accurate colours. It's a good choice for photographers who shoot medium or large-format film.

Nikon's CoolScan LS 50 ED is our Best Buy. It produces sharp and detailed scans with shadow detail that other scanners missed. If you're serious about 35mm photography, you'll love it. **CS**

NIKON
CoolScan LS 50 LD